



## ORIGINAL ARTICLE

# Positive crossover: Parent perceived partner responsiveness and health of youth with asthma

Sabrina J. Bierstetel<sup>1</sup>  | Allison K. Farrell<sup>2</sup>  |  
Erin T. Tobin<sup>3</sup> | Heidi S. Kane<sup>4</sup> | Ledina Imami<sup>5</sup> |  
Samuele Zilioli<sup>6</sup> | Richard B. Slatcher<sup>7</sup>

<sup>1</sup>Franciscan University of Steubenville, Steubenville, Ohio, USA

<sup>2</sup>Miami University, Oxford, Ohio, USA

<sup>3</sup>Henry Ford Health System, Detroit, Michigan, USA

<sup>4</sup>The University of Texas at Dallas, Richardson, Texas, USA

<sup>5</sup>Wesleyan University, Middletown, Connecticut, USA

<sup>6</sup>Wayne State University, Detroit, Michigan, USA

<sup>7</sup>University of Georgia, Athens, Georgia, USA

## Correspondence

Sabrina J. Bierstetel, Department of Psychology, Franciscan University of Steubenville, 1235 University Blvd., Steubenville, OH 43952, USA.  
Email: [sbierstetel@franciscan.edu](mailto:sbierstetel@franciscan.edu)

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## Abstract

Romantic relationship functioning has implications that extend beyond the romantic dyad. This study tests whether a key positive aspect of relationships, *perceived partner responsiveness*, can cross over from parents' romantic relationships to children's health and well-being via parenting behavior. In a sample of 112 youth

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**Statement of Relevance:** This study is among the first to show crossover effects from positive aspects of parents' relationship functioning to children's health and well-being; children's physical health and emotional well-being are associated with the quality of their caregiver's romantic relationship. To improve child health and well-being outcomes, these findings support the notion that their broader social environment should be considered. This work has implications for clinical settings and research centered on promoting family functioning, health, and well-being.

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with asthma and their primary caregivers, when caregivers perceived higher partner responsiveness in their romantic relationship, youth experienced improved self-reported asthma symptoms, pulmonary functioning, and positive affect. The associations were robust while controlling for parents' relationship conflict and other relevant covariates, except for the pulmonary functioning outcome, which was instead predicted by parents' conflict. However, parenting behavior (i.e., positive and negative parenting) did not appear to mediate these links. This work highlights the importance of positive romantic relationship processes for youth health and well-being, emphasizing the relevance of clinical intervention work and the need to continue investigating mechanisms through which these processes may be linked.

**KEYWORDS**

asthma, crossover, health, parenting, perceived partner responsiveness, well-being

Romantic relationship functioning has a major impact on physical health and emotional well-being. For example, high quality relationships are linked to better cardiovascular health and lower mortality (see Robles et al., 2014 for a review) as well as lower psychological stress, depression, and higher subjective well-being (see Holt-Lunstad et al., 2008 for a review). Notably, the effects of romantic relationship functioning extend beyond the romantic dyad, with the quality of parents' own romantic relationship affecting their children's health and well-being (for reviews, see Repetti et al., 2011; Troxel & Matthews, 2004). However, prior studies have primarily focused on negative aspects of relationship quality, such as conflict (Repetti et al., 2002), rather than on positive aspects of relationship quality. In this study, we test whether a key positive aspect of romantic relationships—perceived partner responsiveness (PPR)—is linked to the health and well-being of the offspring and whether parenting behaviors toward the child might explain this hypothesized link.

The family environment plays a critical role in youth health and well-being (e.g., Repetti et al., 2002; Repetti et al., 2011). Marital conflict and strain are generally associated with poorer youth physical health, including higher rates of illness and physical symptoms (El-Sheikh & Harger, 2001; Feldman et al., 1997; Gottman & Katz, 1989), and specifically associated with greater asthma morbidity (Northey et al., 1998). Negative aspects of the family environment are also tied to a range of negative behavioral and emotional outcomes during childhood, including increased depressive symptoms, withdrawal, and conduct problems (Fantuzzo et al., 1991; Kerig, 1998; Rossman & Rosenberg, 1992; Snyder et al., 1988). Because of the large focus on marital conflict and distress, many of the specific processes and pathways through which marital conflict may influence youth health and well-being are well documented. Underlying many

of the models investigating the powerful effects of marital conflict on youth health and well-being is the assumption that marital conflict is perceived as a stressor that affects psychological and physical health directly and also indirectly by disrupting parent-youth relationships, emotional security, emotion regulation, and socio-emotional development (e.g., Davies & Cummings, 1994; Grych et al., 2003; Grych & Fincham, 1990; Repetti et al., 2002; Sturge-Apple et al., 2012; Troxel & Matthews, 2004).

However, there is a major gap in the body of work linking marital functioning with child health and well-being, as the majority of studies only focus on *negative* aspects of relationship functioning. The effects of positive aspects of relationship functioning on child outcomes are much less clear. Positive and negative processes in relationships are not two ends of one continuum, but distinct (although related) and can exert independent effects (Uchino et al., 2012). Positive romantic relationship processes are known to promote better health and well-being in relationship partners (see Farrell & Simpson, 2017 and Slatcher & Selcuk, 2017 for reviews). Recent work has also shown that youth reports of parents' physical affection with one another are associated with better youth health (Abbas et al., 2016).

One particularly impactful positive relationship process for romantic partner health and well-being that has not been studied in connection with child outcomes is PPR. PPR refers to the extent to which individuals perceive their partner as understanding them, validating their thoughts and feelings, and expressing care and affection (Reis et al., 2004; Reis & Shaver, 1988). Among couple members, responsiveness is associated with both personal and relational health and well-being (e.g., Feeney & Collins, 2014; Laurenceau et al., 1998; Murray et al., 2006; Reis et al., 2004). PPR has been shown to be especially predictive of romantic partners' markers of physical health, including cortisol (Slatcher et al., 2015), sleep (Selcuk et al., 2017), and early mortality (Stanton et al., 2019). Many of these health effects are driven by affective processes like negative emotionality (Slatcher et al., 2015) and emotional reactivity to stress (Stanton et al., 2019). Given its role as a central organizing construct in romantic relationships (Reis, 2012) and its known links with health and emotional well-being, parents' perceptions of responsiveness in their romantic relationships may be related to better health and emotional well-being in their children.

How does parent relationship functioning trickle down to affect children? Many of the existing studies take a crossover model perspective, suggesting that the stress stemming from poor romantic relationship functioning depletes regulatory resources and thus leads to worse parent-child relationship functioning (Belsky, 1984; Bolger et al., 1989; Sears et al., 2016). Meta-analyses show that greater conflict in parental romantic relationships is associated with worse parenting and lower parent-child relationship quality (Erel & Burman, 1995; Krishnakumar & Buehler, 2000). Here, we propose that in the context of positive parental relationship functioning, a *positive* form of crossover should be observed such that a high-quality relationship should act as a stress buffer, providing parents with more cognitive and emotional resources to devote to their child, and this should lead to improved health and well-being outcomes for youth. Although positive relationship processes have not received as much attention from researchers as negative parenting processes, recent work has shown that PPR predicts relationship satisfaction during the transition to parenthood (Smallen et al., 2021), and there is a substantial body of work showing that higher quality marital relationships are associated with higher quality parenting (e.g., Cox et al., 1989; Engfer, 1988; Heinicke, 1995; see Grych, 2002 for a review). These findings show support for consideration of the role of PPR in the context of parenting. As PPR is a key indicator of high-quality romantic relationships, it should be linked to higher quality parenting behaviors.

Few studies have tested whether parenting behavior mediates the link between parent romantic relationship quality and the health and well-being of their children. Unsurprisingly, the focus has been on negative parenting behaviors, providing evidence that conflict and hostility between parents and children mediate the link between greater conflict and hostility in parents' romantic relationships and child outcomes such as emotional distress (Chung et al., 2009) and externalizing behavior (Sears et al., 2016). To our knowledge, only one study has tested positive parenting as a mediator of links between high quality parent romantic relationships and child well-being: Ratcliffe et al. (2016) found that mothers' higher relationship quality predicted a decline in children's negative behavior via positive engagement in parenting. No studies to our knowledge have tested such effects on children's physical health outcomes, and potential links between parents' PPR, their parenting behavior, and youth health and well-being have not been investigated.

To test these ideas, we used data from the Asthma in the Lives of Families Today (ALOFT) study, which follows youth with asthma (ages 10–17) and their families to understand how family functioning affects well-being and health, especially asthma-related issues. Recent models have hypothesized that stress during critical periods of development triggers biological programming within the immune system, including key processes involved in asthma pathogenesis, contributing to inflammation, the development of chronic illnesses, and the progression of existing ones (Chen & Miller, 2007; Miller et al., 2011). Thus, asthma serves as a valuable model to better understand how positive factors of family life and relationships may benefit the health and well-being of youth with chronic illness. Moreover, the daily diary component of the study allows these relationships to be measured in daily life, providing windows into participants' real experiences that can be particularly useful for future clinical applications. The hypotheses are as follows:

**Hypothesis 1.** Greater PPR reported by parents will be associated with better youth health (i.e., pulmonary lung function and self-reported asthma symptom severity) and emotional well-being (i.e., daily expressions of positive and negative affect) outcomes.

**Hypothesis 2.** Positive and negative parenting behaviors reported by both parents and youth will mediate the link between parental PPR and youth health and emotional well-being.

## 1 | METHOD

### 1.1 | Participants

Participants in the current investigation were included in the first wave of an ongoing, six-year longitudinal study, ALOFT. The ALOFT study explores family dynamics, biological changes, and asthma morbidity in youth from the Metro-Detroit area. Participants were recruited from local area hospitals and schools between 2010 and 2014. To be included in the study, youth were required to be between 10 and 17 years of age and diagnosed with asthma. Families were excluded if the participating youth was diagnosed with a chronic condition other than asthma (e.g., endocrine disorders, immunodeficiency, and cardiovascular disease), diagnosed with a

medical condition that may impede immune system function (e.g., pregnancy, chemotherapy, or radiotherapy in the past year), or currently using oral steroid medications.

The full study included 194 youth and their primary caregivers. However, only youth whose caregivers indicated that they were currently in a romantic relationship throughout the study and participated in the daily diary portion of the study were included in the current investigation. Thus, the sample was comprised of 112 youth (61 boys and 51 girls) whose average age was 12.97 years old ( $SD = 1.94$ , range = 10–17) and 112 primary caregivers (hereafter referred to as “parents”), including mothers (93.7%), fathers (5.4%), and grandmothers (0.9%) whose average age was 40.90 ( $SD = 7.15$ , range = 29–62). The sample was 70.5% African American/Black, 26.8% Caucasian/White, 0.9% Latino, .9% Asian Indian, and 0.9% multiracial. Sixty-six percent of families reported income tax brackets below \$31,850; on the upper end, 3.6% of the sample had an income in the \$97,926–174,850 bracket. The modal self-reported parental education (24.3%) was one or more years of college with no degree (range = 9th grade completed to doctorate degree). Within their current romantic relationships, 45.5% of parents were married to and living with their partner, 17.9% were not married but were living with their partner, and 36.6% were not living with their partner.

## 1.2 | Procedure

Youth and their primary caregivers came to the lab for a baseline assessment that included consent/assent procedures and the completion of a series of background questionnaires and interviews. At the lab visit, participants were also provided with instructions for completing the daily diary measures and procedures (e.g., using a peak flow meter) during the at-home portion of the study. Following the lab visit, participants completed a four-day daily diary at home. Study materials were then collected, and participants were thanked and compensated. All study protocols and procedures were approved by the Wayne State University Institutional Review Board.

## 1.3 | Measures

Descriptive statistics for each measure are provided in Table 1. Except for the covariates, all measures were completed during the daily diary component of the study. These constructs are analyzed at the person level since a four-day period is not ideal for testing within-person effects (Bolger et al., 2003). Accordingly, alphas for the daily diary scales are calculated from mean levels per item over the 4 days (e.g., reliability between average understanding, average validation, and average caring over the 4 days).

### 1.3.1 | Perceived partner responsiveness (PPR)

Parents completed a 3-item measure that assessed the extent to which they perceived that their romantic partners understood, accepted, and cared for them each day during the 4-day daily diary period on a scale from 1 (not at all) to 5 (extremely) (Laurenceau et al., 2005). Responses over the 4 days were averaged to form an index of PPR ( $\alpha = 0.98$ ).

TABLE 1 Correlations and descriptive statistics for key variables.

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Parent PPR	--																		
2. PR positive parenting	0.26**	--																	
3. YR positive parenting	0.14	0.42**	--																
4. PR negative parenting	0.12	-0.07	-0.14	--															
5. YR negative parenting	-0.08	-0.21*	-0.57**	0.32**	--														
6. Youth PEF	0.30**	0.09	-0.02	0.06	-0.005	--													
7. Youth asthma symptoms	-0.21*	-0.09	-0.09	-0.03	0.16	0.07	--												
8. Youth NA	-0.001	-0.08	-0.14	0.32**	0.42**	0.07	0.27**	--											
9. Youth PA	0.22*	0.24**	0.66**	-0.22*	-0.45**	-0.07	-0.25**	-0.42**	--										
10. Youth sex	0.16	0.08	-0.02	0.22*	-0.03	0.08	-0.16	-0.13	0.02	--									
11. Youth race	0.13	-0.13	0.05	-0.04	-0.10	0.11	0.02	-0.01	-0.05	0.07	--								
12. Youth age	0.05	-0.09	-0.11	-0.02	0.06	0.61**	0.20*	0.14	-0.27**	-0.15	0.16	--							
13. Youth height	0.12	0.04	-0.07	0.03	0.09	0.59**	0.20*	0.11	-0.09	-0.07	0.08	0.57**	--						
14. Youth med. use	-0.19*	-0.05	0.06	-0.03	-0.24*	-0.03	-0.10	-0.19*	0.11	0.06	0.13*	-0.08	-0.11	--					
15. SES	0.14	0.004	0.19*	-0.04	-0.11	0.19*	0.02	-0.02	0.07	0.13	0.50**	0.07	0.06	0.13	--				
16. Parent asthma	0.13	0.22*	0.09	-0.06	0.07	-0.07	-0.06	0.15	0.16	-0.04	-0.20*	-0.20*	-0.12	-0.10	-0.11	--			
17. Parent married	0.01	-0.12	0.05	-0.08	-0.22*	0.05	-0.09	-0.10	-0.04	0.01	0.50**	-0.03	-0.07	0.20*	0.32**	0.04	--		
18. Parent conflict	-0.50**	0.01	0.02	0.14	0.06	-0.35**	0.02	0.000	-0.09	0.04	-0.14	-0.07	-0.16	0.13	-0.15	-0.13	-0.14	--	
<i>m(sd)</i> or %	3.88 (.89)	3.63 (1.03)	2.49 (.40)	1.36 (.41)	1.19 (.24)	347.83 (93.67)	1.36 (.37)	1.27 (.31)	2.91 (.65)	55% (.65)	27% (.65)	12.97 (1.94)	158.82 (11.73)	60% (1.76)	0 (1.76)	20% (1.76)	46% (1.76)	1.27 (.30)	

Note: NA, negative affect; PA, positive affect; PEF, peak expiratory flow (l/s); PPR, perceived partner responsiveness; PR, parent reported; SES, socioeconomic status; YR, youth reported; Sex: 1 = male, 0 = female. Race: 1 = white, 0 = non-white; Med. use: 1 = yes medication, 0 = no medication; Parent asthma: 1 = yes asthma, 0 = no asthma; Parent married: 1 = yes, 0 = no. Height measured in centimeters.

\* $p < .05$ ; \*\* $p < .01$ .

### 1.3.2 | Relationship conflict

In addition to testing the effects of positive relationship factors (i.e., responsiveness), relationship conflict was assessed to test whether negative aspects of the parent's romantic relationship were associated with youth outcomes. Parents completed a 14-item measure of relationship conflict during the 4-day daily diary that assessed the degree to which parents reported their own and their partners' negative relationship behaviors and feelings during each day on a scale from 1 (not at all) to 5 (a lot) (Margolin, 1990). Sample items included: "I expressed anger or irritation at my partner," "My partner and I disagreed about a child-related issue," and "My partner nagged me." Reliability was good ( $\alpha = 0.90$ ). Reports of relationship conflict over the 4 days were averaged to form an index of general relationship conflict.

### 1.3.3 | Positive parenting

Two positive parenting indexes were created based on reports from parents and youth participants collected during and averaged over the 4-day daily diary period.

*Parent-reported positive parenting* was assessed with a 4-item measure adapted from Margolin (1990) that assessed the degree to which parents reported positive interactions with their child each day ( $\alpha = 0.91$ ). Items were rated on a scale from 1 (not at all) to 5 (a lot); sample items included: "Today I showed my child love and affection," "Today I had fun with my child," and "Today I hugged or kissed my child."

*Youth-reported positive parenting* was assessed with a 3-item measure adapted from the YES-I-AM Scale (Repetti, 1996; Repetti & Polina, 1994) that assessed the degree to which they reported positive interactions with their parents each day ( $\alpha = 0.79$ ). Items were rated on a scale from 1 (not at all) to 3 (a lot); items included: "My Mom [Dad] gave me love and attention today," "I had fun with my Mom [Dad] today," and "My Mom [Dad] and I got along well today."

### 1.3.4 | Negative parenting

Two negative parenting indexes were created based on reports from parents and youth participants collected during and averaged over the 4-day daily diary period.

*Parent-reported negative parenting* was assessed using a 9-item measure adapted from Margolin (1990) that assessed the degree to which parents reported negative interactions with their child each day ( $\alpha = 0.90$ ). Eight items were rated on a scale from 1 (not at all) to 5 (a lot); sample items included: "Today I was irritated with my child" and "Today I was angry with my child." One item, "How angry was your child at you today?," was rated on a scale from 1 (not at all angry) to 3 (very angry).

*Youth-reported negative parenting* was assessed using a 3-item measure adapted from the YES-I-AM Scale (Repetti, 1996; Repetti & Polina, 1994) that assessed the degree to which youth reported aversive interactions with their parent each day ( $\alpha = 0.73$ ). Items were rated on a scale from 1 (not at all) to 3 (a lot); items included: "My Mom [Dad] got mad at me today," "I was angry at my Mom [Dad] today," and "My Mom [Dad] punished me today."



### 1.3.5 | Youth health outcomes

Youth physical health outcomes consisted of an assessment of pulmonary functioning and self-reported asthma symptoms. Both health outcomes were assessed each day during the 4-day daily diary portion of the study, on the same days as the self-report measures (e.g., PPR).

*Peak expiratory flow (PEF)* is a measure of pulmonary functioning that assesses how well air moves out of the lungs (i.e., the maximum speed that air moves out of the lungs), with higher scores signifying better lung health. Youth participants were given a small, portable device called a peak flow meter (AsthmaCheck, Respironics) and instructed to use it in the morning upon waking and at night before bed each day during the four-day daily diary period. For each morning and evening assessment, youth participants provided three readings in accordance with the American Thoracic Society guidelines (1995). The highest (i.e., “the best”) of these readings was used in the analyses. The best morning readings and the best evening readings were averaged across the 4 days. The morning readings and evening readings were strongly correlated ( $r = 0.92$ ,  $p < .001$ ). Because research has pointed to greater PEF in the afternoon/evening hours, the nighttime PEF value was utilized in the current analyses (Smyth et al., 1999).

*Self-reported asthma symptoms* were provided in the daily diary report. Youth were asked to rate four asthma symptoms experienced that day (wheezing, chest pain, chest tightness, and shortness of breath) and a single item regarding overall asthma control that day on a 5-point scale ranging from 1 (none) to 5 (really wheezy/painful/tight/short/bad). Reliability was good ( $\alpha = 0.90$ ). Higher scores indicate greater asthma symptom severity. Items were averaged across the four-day daily diary period.

### 1.3.6 | Youth positive and negative mood

Youth well-being outcomes consisted of self-reported positive and negative mood. As part of their daily diary reports, youth participants rated how well a series of adjectives described their mood on a scale from 1 (completely inaccurate) to 4 (completely accurate; Cohen et al., 2006). To aid in youth comprehension, two negative mood adjectives were modified from the original scale and two additional positive mood adjectives were added to the scale (Repetti & Polina, 1994). The adjectives for negative mood ( $\alpha = 0.85$ ) were sad, mean, unhappy, tense, angry and worried. The adjectives for positive mood ( $\alpha = 0.89$ ) were lively, happy, at ease, full of energy, cheerful, calm, proud, and loved. Items were averaged across the four-day daily diary period.

### 1.3.7 | Covariates

Participants reported their sex (0 = female, 1 = male), race (0 = non-white, 1 = white), age, height, and asthma-related medication usage (0 = no medication, 1 = yes medication). To determine medication usage, youth provided daily reports of whether they used an oral corticosteroid, inhaled beta-agonist, inhaled corticosteroid, inhaled combination corticosteroid and beta-agonist, and/or a leukotriene-modifying agent; youth who reported using any of the asthma medications on any of the 4 days were given a “yes medication” score. A continuous composite measure of socioeconomic status (SES) was computed by standardizing and



summing reports of parents' education level (1 = no schooling, 16 = Doctorate degree) and annual income (1 = \$7825 or less, 6 = over \$174,850). These covariates were assessed because they are standard covariates considered in the context of psychosocial determinants of asthma (e.g., Blackman & Gurka, 2007; Imami et al., 2019). Parents' marital status (0 = not married, 1 = married) and asthma health (0 = no asthma, 1 = yes asthma) were also assessed to control for possible effects of the type of parental romantic relationship and parental asthma health on youth outcomes.

## 1.4 | Data analysis

To handle missing data, the expectation maximization algorithm was used for continuous variables, which provides unbiased parameter estimates and improves the statistical power of analyses (Enders, 2001; Scheffer, 2002). Mode replacement was used for categorical variables. This approach was utilized because the amount of missing data was small (i.e., one, two, and 13 values for parent education, income, and youth medication usage, respectively). In addition, a missing value analysis revealed that the data were missing at random, with *t*-tests showing no systematic relationship between the missingness of medication usage and the other key variables. SPSS (version 27) was used for all analyses. First, bivariate correlations were conducted to examine the relationship among key variables (see Table 1).

To assess hypothesis 1, we conducted generalized linear models with robust estimators testing the direct effects of PPR on youth asthma outcomes (i.e., PEF, self-reported asthma symptoms) and youth psychological well-being (i.e., positive and negative affect). The generalized linear model procedure was used because it can provide robust standard errors for models with a continuous outcome. To ensure that results were robust, models were first tested without covariates (see Model 1 in Table 2), followed by the covariate models (see Model 2 in Table 2). To test Hypothesis 2, parallel mediation models were used because they allow mediators to correlate such that each mediator can be tested while accounting for their shared variance (Hayes, 2013). Two models were run: one tested parent- and youth-reported positive parenting as parallel mediators, and the other tested parent- and youth-reported negative parenting as parallel mediators. The models were run in PROCESS (Model 4; Hayes, 2013), computing 95% confidence intervals for indirect effects using the bootstrapping approach (10,000 repetitions, HC3 inference). Because indirect effects can exist in the absence of a significant total effect (Zhao et al., 2010), we tested for indirect paths for all youth and well-being outcomes, including those that did not show a direct effect of parent PPR.

## 2 | RESULTS

### 2.1 | Hypothesis 1: Parents' perceived partner responsiveness and youth health and well-being

Hypothesis 1 proposed that greater parental PPR would be associated with better youth health and well-being outcomes. In support of H1, results showed that parents who perceived their romantic partners as more responsive had children with higher peak flow, reduced self-reported asthma symptoms, and higher positive affect. However, there was no significant association

**TABLE 2** Generalized linear models with parent perceived partner responsiveness predicting youth health and well-being outcomes.

Youth outcomes		Youth outcomes			
		PEF	Asthma symptoms	Positive affect	Negative affect
		<i>b</i> (SE)	<i>b</i> (SE)	<i>b</i> (SE)	<i>b</i> (SE)
Model 1	Constant	223.71 (37.70)***	1.70 (0.16)***	2.27 (0.29)***	1.27 (0.20)***
	Parent PPR	31.96 (9.76)**	−0.09 (0.04)*	0.16 (0.07)*	0.000 (0.05)
Model 2	Constant	−472.89 (95.15)***	0.93 (0.44)*	2.92 (0.87)***	1.07 (0.40)**
	Parent PPR	23.86 (8.04)**	−0.11 (0.04)*	0.19 (0.08)*	−0.02 (0.05)
	Youth sex	23.57 (11.92)*	−0.07 (0.07)	−0.10 (0.11)	−0.06 (0.05)
	Youth race	−29.45 (21.48)	0.06 (0.08)	−0.07 (0.19)	0.06 (0.06)
	Youth age	22.15 (4.22)***	0.02 (0.02)	−0.10 (0.03)**	0.02 (0.02)
	Youth height	2.63 (0.61)***	0.005 (0.003)	0.003 (0.01)	0.001 (0.003)
	Youth med. usage	12.50 (11.96)	−0.09 (0.07)	0.22 (0.12)	−0.10 (0.06)
	SES	6.44 (3.55)	0.01 (0.02)	0.04 (0.04)	0.004 (0.02)
	Parent asthma	6.17 (13.55)	0.02 (0.09)	0.15 (0.17)	0.15 (0.08)
	Parent married	19.05 (16.84)	−0.08 (0.07)	−0.12 (0.14)	−0.08 (0.06)

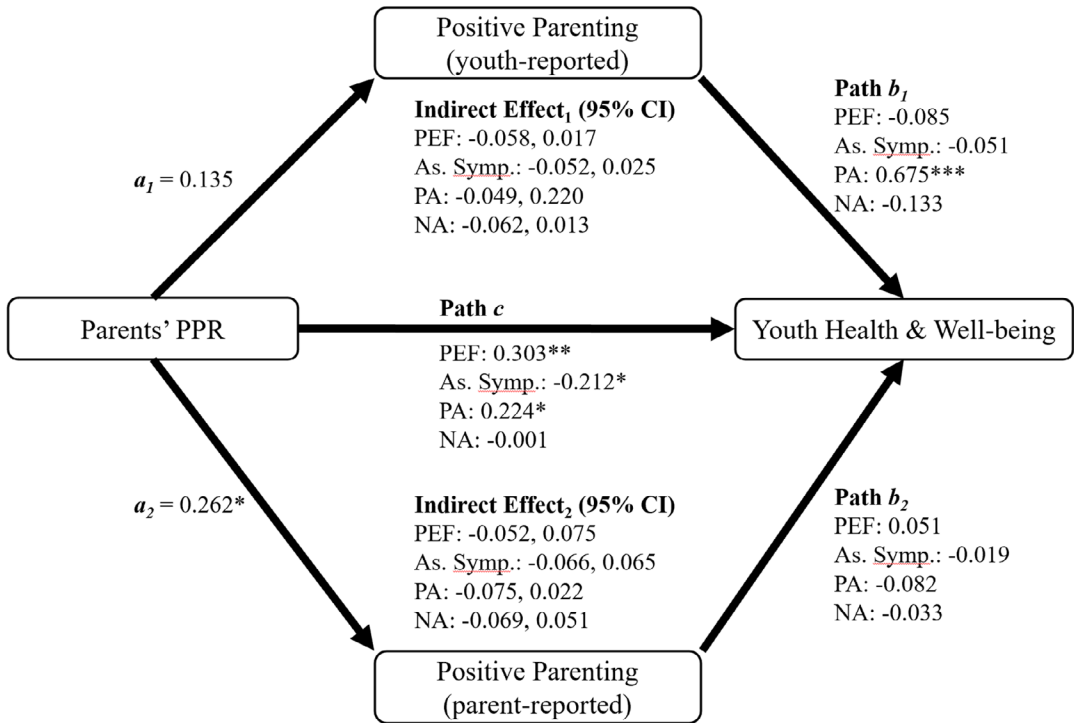
Note: Med., medication; PEF, peak expiratory flow; PPR, perceived partner responsiveness; SES, socioeconomic status.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

between parents' PPR on youth negative affect. The results were consistent across models (see Table 2).

## 2.2 | Hypothesis 2: Parenting behavior as a mediator

Hypothesis 2 proposed that parent-reported and youth-reported parenting behavior toward their children would mediate the link between parent PPR and youth health and well-being. Models first tested youth- and parent-reported positive parenting as a mediator of the link between PPR and youth health and well-being; the results of these analyses are shown in Figure 1. Parents' PPR was positively associated with parent-reported positive parenting, and youth-reported positive parenting was positively associated with youth positive mood. However, regardless of the reporter, positive parenting did not significantly mediate the link between parents' PPR and youth physical health (i.e., asthma symptoms or peak flow) or well-being (i.e., positive and negative mood). Next, youth- and parent-reported negative parenting was tested as a mediator of the link between PPR and youth health and well-being. The results of these analyses are shown in Figure 2. Youth-reported negative parenting was positively associated with youth negative mood and negatively associated with youth positive mood. However, neither youth- nor parent-reported negative parenting was associated with parents' PPR or significantly mediated the link between parents' PPR and youth physical health or well-being. Thus, H2 was not supported.



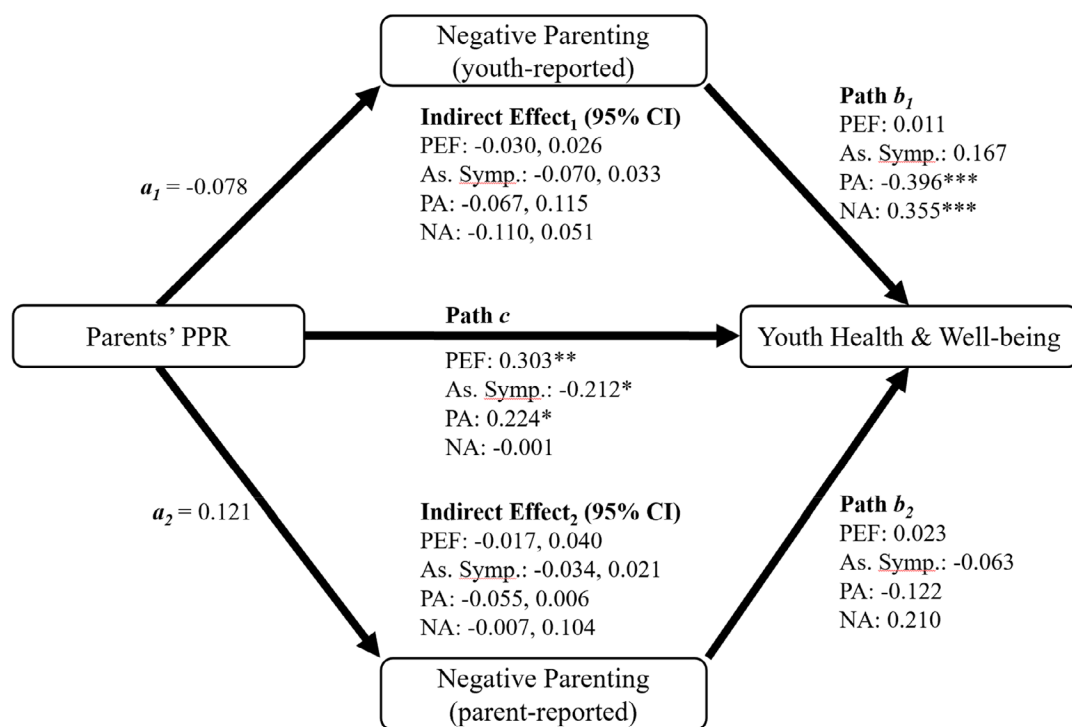
**FIGURE 1** Direct and indirect associations between parents' PPR, positive parenting, and youth health and well-being outcomes. Values reflect standardized effects;  $a_n$  is effect of PPR on positive parenting;  $b_n$  is effect of positive parenting on youth health and well-being outcomes;  $c$  is total effect of PPR on youth health and well-being outcomes. CI, confidence interval; PEF, Peak Expiratory Flow; As. Symp., asthma symptoms; PA, positive affect; NA, negative affect.  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$ .

## 2.3 | Parent partner conflict

One key alternative explanation is that the observed associations may not be due to the presence of positive relationship functioning, but rather to a lack of negative relationship issues. Thus, to rule out this explanation, we reran the generalized linear models to control for parents' relationship conflict along with other covariates (see Table 3). When parents' conflict was included in the model, the link between parent PPR and peak flow was no longer significant, but the association with self-reported asthma symptoms and positive affect remained robust. Greater conflict in parents' relationships predicted lower peak flow, but was not associated with asthma symptoms, positive affect, or negative affect. Together, results suggest that although parent conflict may be important for adolescents' objective health measures, such as peak flow, parent PPR appears to be important for adolescents' perceived experiences of health and well-being, such as asthma symptom severity and positive affect.

## 3 | DISCUSSION

This study tested for links between a key element of relationship quality—PPR—in parents' relationships and their children's health and well-being. We found significant associations



**FIGURE 2** Direct and indirect associations between parents' PPR, negative parenting, and youth health and well-being outcomes. Values reflect standardized effects;  $a_n$  is effect of PPR on negative parenting;  $b_n$  is effect of negative parenting on youth health and well-being outcomes;  $c$  is total effect of PPR on youth health and well-being outcomes. CI, confidence interval; PEF, peak expiratory flow; As. Symp., asthma symptoms; PA, positive affect; NA, negative affect. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

between parent PPR and youth health and well-being for three of the four youth outcomes we tested while controlling for a variety of demographics, medication usage, and parent asthma health. Results showed that higher PPR in parents' romantic relationships was associated with improved youth self-reported asthma symptoms, pulmonary functioning (i.e., peak flow), and positive affect. We hypothesized that these effects would be due to positive crossover effects from romantic relationships to parent-child relationships, reflected in increased positive parenting and decreased negative parenting. However, we did not find support for this mediational path for any of the youth well-being outcomes (i.e., positive and negative affect) or youth health outcomes (i.e., asthma symptoms and peak flow).

This study is one of the first to show that positive aspects of parents' romantic relationship functioning can cross over to children's well-being and physical health. These findings provide evidence that positive aspects of relationship functioning may be just as important as negative aspects; indeed, analyses testing the role of parental conflict in romantic relationships found that conflict was not associated with youth health and well-being outcomes, with the exception of peak flow. Moreover, the links between PPR and most outcomes (i.e., all but peak flow) were robust to the inclusion of conflict in the models. Relationship researchers have begun paying increasing attention to positive relationship processes (Reis & Gable, 2003; Slatcher & Selcuk, 2017), and this research further validates that focus. These findings have potential implications for informing clinical practices; focusing on promoting positive romantic

**TABLE 3** Generalized linear models with perceived partner responsiveness and parent partner conflict predicting youth health and well-being outcomes.

Youth outcomes	PEF	Asthma symptoms	Positive affect	Negative affect
	<i>b</i> (SE)	<i>b</i> (SE)	<i>b</i> (SE)	<i>b</i> (SE)
Constant	−313.92 (106.38)**	1.14 (0.54)*	2.84 (1.06)**	0.98 (0.54)
PPR	12.65 (7.35)	−0.12 (0.05)**	0.19 (0.09)*	−0.02 (0.07)
Parent conflict	−69.57 (22.33)**	−0.09 (0.13)	0.04 (0.22)	0.04 (0.14)
Youth sex	28.53 (11.43)*	−0.07 (0.07)	−0.11 (0.11)	−0.06 (0.05)
Youth race	−30.11 (21.08)	0.05 (0.08)	−0.07 (0.19)	0.06 (0.06)
Youth age	22.49 (3.93)***	0.02 (0.02)	−0.10 (0.03)**	0.02 (0.02)
Youth height	2.43 (.61)***	0.004 (0.003)	0.003 (0.01)	0.001 (0.003)
Youth med. usage	14.63 (11.84)	−0.08 (0.07)	0.22 (0.12)	−0.10 (0.06)
SES	5.75 (3.25)	0.01 (0.02)	0.04 (0.04)	0.01 (0.02)
Parent asthma	2.36 (13.25)	0.02 (0.09)	0.15 (0.17)	0.15 (0.08)
Parent married	13.95 (16.38)	−0.08 (0.07)	−0.12 (0.15)	−0.07 (0.06)

Note: Med., medication; PEF, peak expiratory flow; PPR, perceived partner responsiveness; SES, socioeconomic status.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

relationship processes such as PPR during couples and family therapy may promote positive family environments and support child health and emotional well-being. Future work should examine whether other positive qualities of relationship functioning, such as forgiveness (McCullough et al., 1998), capitalization (Gable & Reis, 2010), and mindfulness (Karremans et al., 2017), cross over between relationships to influence health and well-being in similar ways.

Although PPR has long been a key organizing construct in the study of adult romantic relationships, it has not been reflected in the parent–child literature to the same extent. The current study aimed to investigate links between PPR, parenting behaviors, and youth health and well-being outcomes, but failed to find support for the proposed mediational pathways. Across models, there was evidence that youth perceptions of parenting behavior are linked to youth well-being. However, except for PPR and parent-reported positive parenting, there was no evidence for associations between PPR and positive and negative parenting behavior. The lack of significant findings for parenting behavior on physical health outcomes may be due to the age of our participants. Hostinar et al. (2015) found that parents buffered children's physiological stress responses for younger (i.e., 9–10 years old) children, but not adolescent-aged children (i.e., 15–16 years old). Our sample was more similar in age to this older group, and thus the parenting effects on physical health may be reduced compared to those of younger children. Future studies should attempt to test these processes with youth of different ages and functioning in different types of relationships (e.g., friendships, adolescent romantic relationships). The lack of significant findings overall for links between parents' PPR and parenting behavior and for indirect effects of parents' PPR on youth outcomes via parenting behavior suggest that the mechanism through which parents' PPR “gets under the skin” to influence youth health and well-being may be through a process other than their direct parenting behaviors. For instance,

parent PPR may be linked to youth health and well-being by promoting more secure attachment orientations and/or better emotion regulation skills (Davies & Cummings, 1994) or by lessening internalizing symptoms (Lim et al., 2008; Lim et al., 2011). These possibilities will be important for future work to consider.

### 3.1 | Strengths and limitations

This study has multiple unique strengths. It demonstrates the interdependence of multiple dyadic relationships within the larger family unit and the wide-ranging consequences of relationship functioning by testing the crossover from romantic dyads to youth. Paralleling this focus on multiple relationships within the family, this study utilizes reports from multiple individuals (i.e., both parents and youth) and a mix of daily diary self-reported outcomes and objective endpoints of asthma health; these daily measures may provide more accurate insight into experiences of asthma than one-time measures. The unique sample of this study also provides important insight for clinicians who work with vulnerable families and children. However, there are some limitations. This study was cross-sectional, making it difficult to draw any causal conclusions about the directionality of crossover effects. Longitudinal data are needed to better clarify the effects and determine how long these effects may last. Longer periods of daily diary data would also allow for the examination of daily effects. Other studies have found that the effects of high-quality parenting continue to affect health into adulthood (see Repetti et al., 2002 for a review), but the extent to which witnessing parents in high quality relationships may benefit youth health and well-being outcomes down the road and in other domains, such as the functioning of their own romantic and parent-child relationships in adulthood, is unknown. Finally, it is possible that our measure of parenting behavior was not sensitive enough to capture the potential effects of PPR on parenting behavior and, in turn, youth health and well-being. However, we view our measurement of both positive and negative parenting behavior from both parent and youth perspectives as a strength of this study.

## 4 | CONCLUSION

Romantic relationships play an important role in the lives of those beyond the members of the couple in question. This work indicates that physical health and emotional well-being outcomes in their children are associated with the quality of one's romantic relationship. However, the positive or negative parenting behaviors that parents engage in with their children did not appear to mediate these links. In order to improve health and well-being outcomes for children, these findings support the notion that one should consider the broader social environment that surrounds them. Moreover, it will be critical for future work to consider mechanisms other than positive and negative parenting behavior as a vehicle through which crossover from parents' romantic relationships to children's health and well-being might occur.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

**ORCID**

Sabrina J. Bierstetel  <https://orcid.org/0000-0002-3417-6069>

Allison K. Farrell  <https://orcid.org/0000-0002-8233-4076>

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